

### **REMARKS**

This is a full and timely response to the outstanding non-final Office Action mailed January 10, 2007. The Examiner is thanked for the thorough examination of the present application. Upon entry of this response, claims 1-37 are pending in the present application. Claims 5, 10, 13-31, and 35-36 are objected to because of various informalities. Claims 10, 12, 16-22, 28, and 31 are rejected under 35 U.S.C. §112, 2<sup>nd</sup> paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 1, 6, 10, 22, 27, and 31 are rejected under 35 U.S.C. §102(e) as allegedly being anticipated by *Kim* (U.S. Pat. No. 6,847,679). Claims 2-4, 7-9, 23-25, and 28-30 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Kim*, in view of alleged prior art discussion.

Applicants respectfully request consideration of the following remarks contained herein. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

#### **I. Allowable Subject Matter**

Applicants would like to first thank the Examiner for indicating that certain claims are allowed. Specifically, Applicants appreciate the indication that independent claim 32 along with corresponding dependent claims 33-34 and 37 are allowed. Furthermore, Applicants acknowledge that claims 5, 11, 13-21, 26, and 35-36 would be allowable if rewritten to overcome various objections, including objections under 35 U.S.C. §112, 2<sup>nd</sup>

paragraph. Applicants have amended claims 5, 13-21, 26, and 35-36, as indicated above.

Regarding claim 11, Applicants thank the Examiner for indicating that this claim would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. At this time, however, Applicants have elected not to amend claim 11. Applicants respectfully request consideration of the remarks set forth below.

## **II. Information Disclosure Statement**

Applicants have attached copies of the references cited within the IDS. Applicants believe that the copies submitted comply with 37 CFR 1.98(a)(2).

## **III. Objection to the Specification**

As indicated above, Applicants have noted the objections raised with respect to the specification and have amended the specification accordingly. Applicants respectfully request that the objections raised be withdrawn.

## **IV. Claim Objections**

In response to the objections raised due to various informalities, Applicants have amended the identified claims accordingly and respectfully request that the objections be withdrawn.

**V. Response to Claim Rejections Under 35 U.S.C. § 112**

Claims 10, 12, 16-22, 28, and 31 stand rejected under 35 U.S.C. §112, 2<sup>nd</sup> paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse this rejection. Regarding the “TCM-ISDN network” recited in claims 10 and 31, the Office Action alleges that the term TCM-ISDN is undefined. However, Applicants refer to page 3, lines 8-11 of the specification, which states the following:

Of particular interest in the present application is the effect of a large network of conventional **TCM-ISDN (Time Compression Multiplex ISDN)** telephone lines on ADSL development. Annex C of the G.992.1 Recommendation directly relates to such circumstances.

Furthermore, Applicants submit that the term TCM-ISDN is well known to those skilled in the art of xDSL communication systems.

With respect to claims 12, 16, and 28, Applicants have amended these claims to overcome the §112 rejection. Accordingly, Applicants respectfully request that the §112 rejections to claims 10, 12, 16-22, 28, and 31 be withdrawn.

**VI. Response to Claim Rejections Under 35 U.S.C. § 102**

Claims 1, 6, 10, 22, 27, and 31 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by *Kim*. For at least the reasons set forth below, Applicants traverse these rejections.

**Independent Claim 1 is Patentable Over Kim**

Claim 1 recites (emphasis added):

1. In an asynchronous digital subscriber line (ADSL) system comprising a central office High Speed ADSL Terminating Unit (HSTU-C) in bi-directional discrete multitone (DMT) communication with a remote High Speed ADSL Terminating Unit (HSTU-R), a method for improving handshake detection comprising:

transmitting handshake signaling from the HSTU-C to the HSTU-R via a first subset of carrier sets at a first symbol rate; and transmitting handshake signaling from the HSTU-C to the HSTU-R via a second subset of carrier sets at a second symbol rate, the second symbol rate being less than the first symbol rate.

Applicants respectfully disagree that the *Kim* reference teaches the features of claim 1 and specifically refer to the features emphasized above. While the *Kim* reference teaches of communication between ATU-C and ATU-R in an ADSL system, Applicants submit that a basic distinction can be made between the *Kim* reference and claim 1.

Claim 1 discloses transmitting handshake signaling at a first and second symbol rate. The *Kim* reference teaches that low rate signals e.g., signals of a plain old telephone service (POTS) and an integrated services digital network (ISDN) are transmitted through a low pass link and high rate signals e.g., a packet and a superframe are transmitted through a high pass link. The distinction that Applicants would like to emphasize is that the type and nature of the data sent over the two links in *Kim* is different than the data transmitted in claim 1. Specifically, Applicants submit that one basic distinction lies in the fact that the *Kim* reference does not teach or suggest sending handshake signaling over both a low pass link and a high pass link, whereas claim 1 teaches of transmitting "handshake signaling" at both a first symbol rate and a second symbol rate. The background section for the present invention states the following (emphasis added):

Prior to any transmission of actual data between the central office ADSL transceiver unit (ATU-C) and the remote ADSL transceiver unit (ATU-R), the two entities must first undergo an initialization procedure designed to familiarize the two entities with each other, identify the bandwidth capabilities for the current session, and further facilitate the establishment of a valid connection. Pursuant to ADSL standards provided by the International Telecommunication Union--Telecommunication Standardization Sector (ITU-T), these initialization procedures comprise the following: 1) a handshake procedure; 2) a transceiver training session; 3) a channel analysis session; 4) an exchange session; and finally 5) an actual data transmission session commonly referred to as "showtime."

Specifics of the handshake procedure are set forth in ITU-T Recommendation G.994.1--"Handshake Procedures for Digital Subscriber Line (DSL) Transceivers", the body of which is incorporated by reference herein. The handshake procedure is designed to enable peer components to initiate a communications session between each other and generally includes the exchange of several specific types of messages having predetermined formats.

(Paragraphs 0006-0007)

Generally, handshaking refers to the negotiating process which takes place between two entities to establish parameters of the communications channel before actual data transmission takes place over the channel.

In contrast, the *Kim* reference appears to focus on passing actual data through either a "high pass link" or a "low pass link" during normal operating conditions depending on whether the data is low rate data or high rate data. Indeed, one of the problems that *Kim* seeks to address is discussed in the background section (emphasis added):

Therefore, the traffic bottleneck may occur such as other subscribers use very low traffic or wait for the completion of the high speed data transmission when one subscriber transmits a mass storage file or dynamic picture information.

(Col. 2; lines 46-50)

Considering the above-mentioned problems, it is an object of the present invention to provide an dual link DTM ADSL transmitter-receiver by a DMT system . . .

(See Summary of the Invention, Col. 2; lines 53-55)

The transmission of a mass storage file or dynamic picture information referenced above tends to imply communications during normal operating conditions and not during channel initialization (identification of bandwidth capabilities, establishment of a valid connection, *etc.*). Applicants also refer to Table 3 in the *Kim* reference, which shows the low link transmitting such data as duplex voice grade channels below 64 kb/s to accommodate POTS and ISDN signals. The high link transmits such signals as single way channels AS0-AS3 below 6 Mb/s, which accommodate signals relating to VOD (video on demand) and high speed ATM.

Accordingly, Applicants respectfully submit that independent claim 1 patently defines over *Kim* for at least the reason that *Kim* fails to disclose, teach or suggest the features emphasized above in claim 1.

**Dependent Claims 2-15 are Patentable**

Applicant submits that dependent claims 2-15 are allowable for at least the reason that these claims depend from an allowable independent claim. *See, e.g., In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988).

**Independent Claim 22 is Patentable Over Kim**

Claim 22 recites (emphasis added):

22. An asynchronous digital subscriber line (ADSL) system comprising:  
a central office High Speed ADSL Terminating Unit (HSTU-C); and

a remote High Speed ADSL Terminating Unit (HSTU-R) in bi-directional discrete multitone (DMT) communication with the HSTU-C; wherein the HSTU-C is adapted to:  
**transmit handshake signaling** to the HSTU-R via a first subset of carrier sets **at a first symbol rate**; and  
**transmit handshake signaling** to the HSTU-R via a second subset of carrier sets **at a second symbol rate**, the second symbol rate being less than the first symbol rate.

On page 6, the Office Action applies the same arguments in rejecting claim 1 to reject claim 22. Applicants again respectfully disagree that the *Kim* reference teaches all the features in claim 22. As discussed in depth above, Applicants submit that a basic distinction can be found between the *Kim* reference and claim 22. This distinction lies in the fact that *Kim* does not appear to teach of sending "handshake signaling" over the low pass link and high pass link disclosed within the reference. *Kim*, instead, appears to teach of sending POTS, ISDN, and DSL signals such as voice and text data over the links. The *Kim* reference does not appear to address the aspect of channel initialization via handshaking signaling.

Accordingly, Applicants respectfully submit that independent claim 22 patently defines over *Kim* for at least the reason that *Kim* fails to disclose, teach or suggest the features emphasized above in claim 22.

**Dependent Claims 23-31 are Patentable**

Applicant submits that dependent claims 23-31 are allowable for at least the reason that these claims depend from an allowable independent claim. *See, e.g., In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988).

## **VII. Prior Art Made of Record**

The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

### **CONCLUSION**

Applicants respectfully submit that all pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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